

**Consultation document for the
incremental capacity project on the
border between
Poland (E-Gas Transmission System)
and
Germany (Trading Hub Europe)**

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This document is a joint analysis of the incremental capacity need on the border between Poland (E-Gas Transmission System) and Germany (Trading Hub Europe) commonly conducted by:

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This analysis concerns the draft project proposal on the incremental capacity project for the interconnection point (IP) GCP GAZ-SYSTEM/ONTRAS, which connects the entry-exit system of Poland (E-Gas Transmission System)¹ and the German entry-exit system (Trading Hub Europe)².

The Market Demand Assessment Report (MDAR) assessed the non-binding demand indication received within the period from 1 July 2019 until 26 August 2019. Based on the conclusions of the MDAR published on both TSOs websites on 21 October 2019, concerned TSOs have begun to conduct technical studies based on Article 27 of Commission Regulation (EU) 2017/459 in order to design the incremental capacity project. This document is the result of the technical studies and calculations held by ONTRAS and GAZ-SYSTEM.

Assumptions presented in this document might be adjusted based on findings in the market consultation. The market consultation will take one month starting on 10 August 2020 and ending on 10 September 2020.

In this document the following abbreviations are used: NC CAM = Commission Regulation (EU) 2017/459; NC TAR = Commission Regulation (EU) 2017/460.

¹ In the following the denotation of the Polish system is used without the addition "E-Gas Transmission System"

² Common German market area to be established as of 1 October 2021.

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1. Description of the incremental capacity project

This section describes the common draft project proposal for incremental capacity on the border between Poland and Trading Hub Europe based on the respective technical studies conducted by GAZ-SYSTEM and ONTRAS. The description includes also a cost estimate.

The incremental capacity project is being held for the IP GCP GAZ-SYSTEM/ONTRAS. The demand for incremental capacity has been indicated in the direction from Poland to Trading Hub Europe.

To meet the indicated demand for incremental capacity at IP GCP GAZ-SYSTEM/ONTRAS, GAZ-SYSTEM and ONTRAS conducted analyses related to the technical development of the Lasów gas station together with a technical analysis of the required extension of the national natural gas infrastructure. However, in line with Article 29 (1) of NC CAM the incremental capacity will be auctioned together with already existing capacity for this IP.

1.1. Description of the project on the German side (ONTRAS)

The German Network Access Regulation (GasNZV) obliges German TSOs to merge two existing entry-exit zones (GASPOOL and NetConnectGermany) into one single entry-exit zone until 1 April 2022. German TSOs announced the start of the merged German entry-exit zone Trading Hub Europe as of 1 October 2021.

In total, the technical studies of the present cycle for incremental capacity considered 63 scenarios, each based on a different combination of projects based on non-binding demand indications (see Annex 1). The expansion measures were developed under the premise that all indicated capacities would be booked and that all economic tests would be positive. In this document, only those measures of the maximum variant are described in text form that are partly caused by the above-mentioned requested capacities. All expansion measures of the maximum scenario are shown in Figure 1. A detailed breakdown of costs is not provided here. The basis of the listed expansion measures is the infrastructure contained in the draft document for the German Gas Network Development Plan 2020-2030 (published on 1 July 2020; hereinafter "NEP"), including the network expansion measures resulting from the "basic variant". The investment costs are initial estimates.

Incremental Capacity Cycle 2019-2021 – Expansion

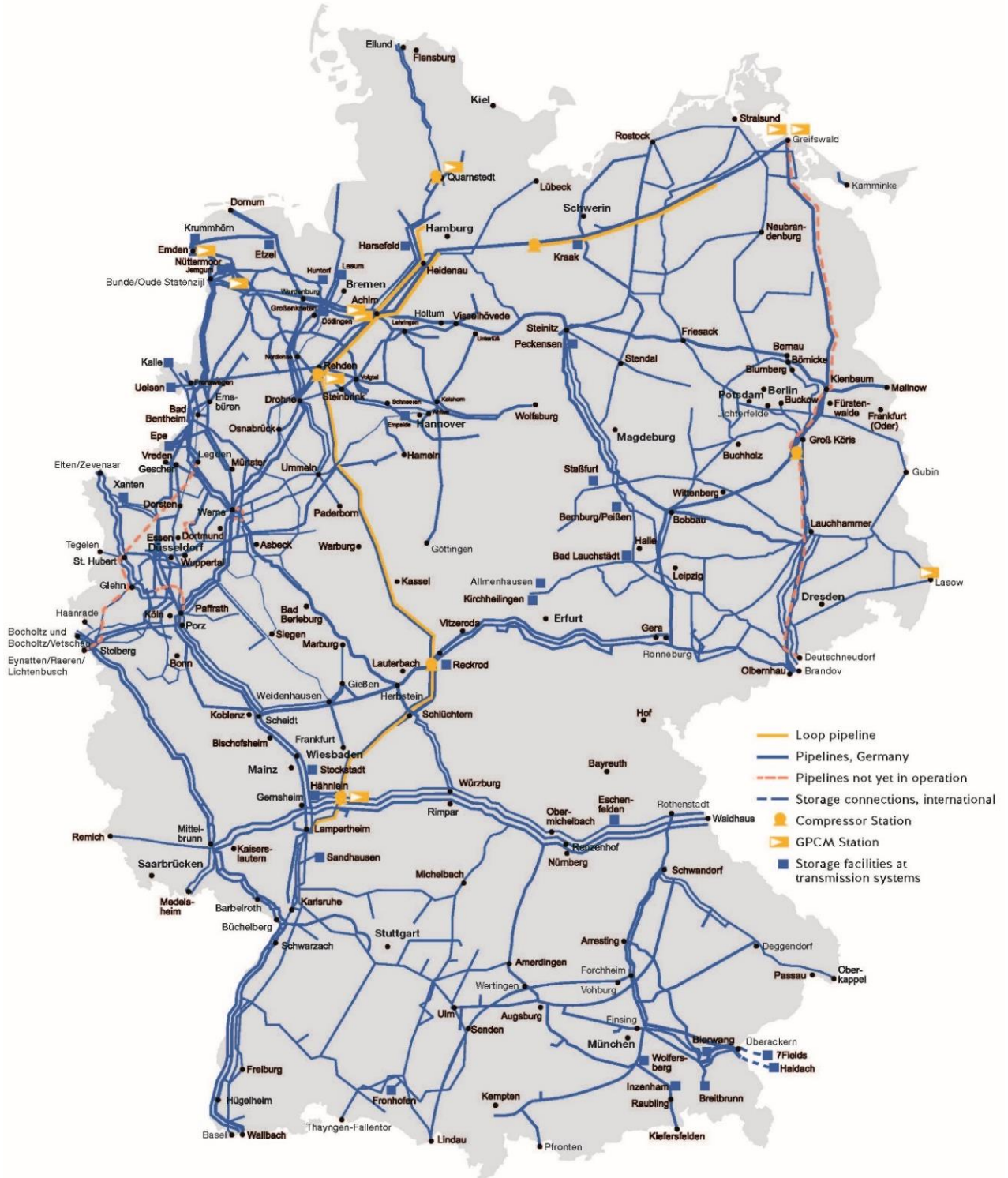


Figure 1: Expansion measures of the maximum scenario

Corresponding to arrangements with the Polish grid operator GAZ-SYSTEM pressure greater than 55 bar and as circumstances require even up to 84 bar shall be provided in the event of gas flow from Poland to Germany with a quantity of up to 2,029,300 kWh/h/y³ from the Polish gas system.

On German side the pipeline FGL 218.01 with a design pressure of 84 bar was constructed in the year 1992; however, since commissioning, this and the further pipeline network has only been operated with a maximum operating pressure (MOP) of 55 bar. The operating pressure in recent years was 40 bar on the average.

Due to the higher foreseen pressure, construction of a pressure security system [DÜG] in Zodel is required in order to provide pressure safety for FGL 218.01 of ONTRAS with MOP 55 bar. For the construction of the pressure security system in Zodel, investments of approx. EUR 3 million are estimated. The pressure security system will be commissioned in 2026.

Further measures, which will be commissioned in 2027, are necessary to be able to provide incremental freely allocable entry capacities. BNetzA approved base capacity on a certain level. To provide base capacity above this level, the congestion between existing GASPOOL and NetConnect Germany entry-exit systems must not be increased.

The following expansion measures are necessary on the EUGAL gas pipeline: The compressor station Radeland II must be modified. The investments amount to approx. EUR 16 million. In total, the additional investments on this pipeline section amount to approx. EUR 16 million.

The following measures are necessary on the NEL pipeline east of the Achim shut-off station: A compressor station with a compressor capacity of about 75 MW. This is already included in the NEP with a compressor capacity of 50 MW (VDS NEL (middle), ID No. 633-01). The additional investments amount to approx. EUR 136 million. East of the compressor station, a loop line with a length of approx. 118 km is to be constructed in DN 1400. The investments amount to approx. EUR 500 million. To the west of the compressor station, a loop pipeline with a length of approx. 72 km in DN 1400 is to be constructed, ending at the Achim shut-off station. The investments amount to approx. EUR 305 million. In total, the additional investments on this pipeline section amount to approx. EUR 941 million.

On the NEL gas pipeline west of the Achim shut-off station, the following measure is necessary: A loop pipeline with a length of approx. 67 km in DN 1400 has to be constructed. Of this, 52 km in DN 1400 are already included in the NEP (pipeline NEL West, ID no. 634-01). The additional investments amount to approx. EUR 64 million. In total, the additional investments on this pipeline section amount to approx. EUR 64 million.

³ Initially an incremental capacity demand of 1,468,176 kWh/h was submitted to both TSOs and as such presented in [the joint Market Demand Assessment Report](#). However, this demand would have led to a divergent transmission capacity at the IP and this would not have been in line with the intention of the capacity request to align the capacity of the IP. Based on a received correction for the demand of incremental capacity, the final incremental capacity demand has been adjusted so that the total capacity at both sides (including existing technical capacity) of the IP is matched to the level of 2,029,300 kWh/h/y.

The following expansion measures are necessary on the MIDAL gas pipeline: The Rehden compressor station must be extended by a compressor capacity of approx. 48 MW. The investments amount to approx. EUR 261 million. In Rehden, a GDRM station with a capacity of 2.2 million Nm³/h must also be constructed. The investments amount to approx. EUR 17 million. A loop pipeline with a length of approx. 260 km in DN 1400 is to be constructed from Rehden to Reckrod. Of this, 61 km are already included in the NEP (pipeline MIDAL Mitte Nord, ID no. 627-01; pipeline MIDAL Mitte Süd, ID no. 628-01). The additional investments amount to approx. EUR 905 million. A compressor station with a compressor capacity of 84 MW is to be built near Reckrod. This is already included in the NEP with a compressor capacity of 36 MW (VDS Reckrod, ID-No. 629-01). The additional investments amount to approx. EUR 150 million. From Reckrod to Lampertheim a loop pipeline with a length of approx. 200 km in DN 1400 is to be constructed. Of this, 115 km in DN 1000 are already included in the NEP (Wirtheim-Lampertheim line, ID no. 609-01). The additional investments amount to approx. EUR 535 million. A compressor station with a compressor capacity of approx. 46 MW is to be built near Herchenrode. The investments amount to approx. EUR 170 million. In addition, a GDRM station with a capacity of approx. 4 million Nm³/h is to be built in Herchenrode. The investments amount to approx. EUR 31 million. In total, the additional investments on this pipeline section amount to approx. EUR 2,069 million.

German TSOs are still analysing alternatives to offer incremental capacity at GCP GAZ-SYSTEM/ONTRAS without influencing the physical congestion between existing GASPOOL and NetConnect Germany entry-exit systems and within future THE entry-exit system as well. A possible solution could be to re-allocate base capacity within ONTRAS-grid to the entry point GCP GAZ-SYSTEM/ONTRAS. This would be possible, if the estimated costs for market based instruments to provide freely allocable capacity were not increased within THE. As a result, only the construction of the pressure security system would be necessary.

1.2. Description of the project on the Polish side (GAZ-SYSTEM)

Expansion required within the GAZ-SYSTEM grid

In order to ensure the possibility of transporting gas in direction from Poland to Germany with maximum capacity on the level of 2,029,300 kWh/h, the following investments are required on the Polish side:

- Extension of the Kiełczów gas node by construction of regulation system at connection of DN1000 gas pipeline (North – South Gas Corridor) and DN 500 gas pipeline (local gas pipeline on Lower Silesia)
- Extension of Lasów metering station by installation of additional electric actuators
- Construction of DN700 Jeleniów-Taczalin gas pipeline (L=90 km) – for incremental project scope only CAPEX difference between DN700 and DN500 is taken under consideration as for the Polish internal system development pipeline diameter DN500 would be sufficient.

Schedule

Estimated time of the investment at Kielczów gas node and Lasów metering station is 35 months from FID taken.

Construction of Jeleniów -Taczalin gas pipeline is included in the National Development Plan 2020-2029. Estimated time of the investment Construction of DN700 Jeleniów – Taczalin gas pipeline is 60 months from FID taken.

1.3. Cost estimation on the German side (ONTRAS)

Due to the large number of non-binding demand indications for incremental capacity, depending on booking behaviour in the 2021 annual auctions or within the framework of the alternative allocation mechanism for the RU-THE and THE-TTF borders, there are interdependencies with regard to the project costs to be allocated. Depending on the incremental capacity to be provided on a grid section, synergies or dyssynergies may arise. Synergies are mainly generated by economies of scale. For example, the larger the diameter of a loop line is selected, the lower the specific transport costs will generally be for the same relative capacity utilization. Dyssynergies arise mainly through additional investments, e.g. when the combined incremental capacity requirements of several projects trigger a dimensional leap in a line measure. The cost per measure are allocated to the projects according to the provided incremental capacity. The dependencies of the projects as well as the present value of increase of allowed revenues are shown in the Annex 2 to this consultation document.

The costs to be compared to the bindingly submitted bookings will therefore only be known finally after the annual auctions and the alternative allocation mechanism have been carried out.

If the analyses show that a re-allocation of base capacity within ONTRAS-grid without negative effects to the costs for market based instruments is possible, the present value of the increase of allowed revenues would be 3,052,692 EUR.

1.4. Cost estimation on the Polish side (GAZ-SYSTEM)

Approximately EUR 1 million (rough cost estimate +/- 30 per cent) is required for extension of Kielczów node and Lasów metering station. Approximately EUR 30 million (rough cost estimate +/- 30 per cent) is required for the diameter increase from DN500 to DN700 for Jeleniów – Taczalin gas pipeline.

2. Offer level for bundled capacity products

The table below shows the common bundled offer-level for the capacity marketing in the yearly capacity auction in 2021 for GAZ-SYSTEM and ONTRAS taking into account the obligations of set aside capacity of NC CAM. For the application of set aside capacity, ONTRAS has to follow the valid decision of the BNetzA (BK7-15-001 (KARLA Gas)) and considers a 20% reservation quota for existing and incremental capacity as of gas year 2026. For the gas years before, a 10% reservation quota has to be applied for existing and incremental capacity but it will not be applied as the offer level can be offered earliest as of gas year 2026 because of the specific commissioning dates of the projects on two sides of the border. To be able to offer incremental capacity for the gas year 2026/27, although not all necessary expansion measures in Germany are commissioned, freely allocable entry capacity will be re-allocated within ONTRAS grid. For application of set aside capacity, GAZ-SYSTEM follows the same approach in order to offer joint amount of bundled capacity.

The amount to be offered will be calculated based on the calculation methodology described in Article 11 (6) NC CAM.

Year	From 2026/2027 To 2040/2041
Offer Level - capacity auction [kWh/h]	1,623,440
Incremental Capacity - to be offered [kWh/h]	1,620,541
Incremental Capacity - total [kWh/h]	2,025,676
Existing Capacity - to be offered [kWh/h]	2,899
Existing Capacity - total [kWh/h]	3,624

3. Alternative allocation mechanism for incremental capacity

Both TSOs have commonly decided to use the standard auction allocation process for allocating the incremental capacity based on the outcome of the market consultation.

4. Provisional timeline

German TSOs received numerous unbinding requests for incremental capacity for their market borders.

This resulted in a wide range of modelling scenarios, which have to be conducted as a basis for the different technical studies. In addition, the planned market area merger of the two German entry-exit-systems to one German market area (“Trading Hub Europe”) as of 1 October 2021 has an impact on the existing capacity and is therefore also interlinked with the modelling scenarios for incremental capacity. That is why the original timeline given by NC CAM was postponed and the start of the market consultation was adopted⁴.

The incremental capacity project will generally follow this timeline. However, the construction phase will only start if there is a commitment of the market to acquire the respective incremental capacities in the yearly auction 2021 and if there is a positive result in the economic test afterwards for each of the concerned TSOs. Showed times might change.

Start Date	End Date	Description
10.08.2020		Publication of the consultation document
10.08.2020	10.09.2020	Public consultation
11.09.2020	06.10.2020	Planning of the offer levels by the TSOs in close cooperation with the NRA
07.10.2020		Submission of the project proposal to the NRA
07.10.2020	06.04.2021	Processing of the project proposal by the NRA
07.04.2021		Approval and publication of the required parameters by the national regulatory authorities pursuant to Art. 28 (1) NC CAM
08.04.2021	04.05.2021	Adaptation of the offer levels by the TSOs in consideration of the requirements of the NRA
05.05.2021		Publication of the approved parameters, the capacity products and the template of the contract(s) for the capacities offered within the framework of the network expansion project
05.07.2021		Annual auction/Economic test

5. General rules and conditions for participating in the capacity auctions

For the participation in the incremental capacity auctions in 2021, general rules and conditions for each TSO have to be accepted. These are attached to this consultation document. Legally binding for the transport customer is always the version in the national language of the respective TSO and the one approved by the respective NRA.

6. Information on the fixed price approach for the allocation of incremental capacity

Neither GAZ-SYSTEM nor ONTRAS will follow a fixed price approach for the incremental capacity project.

⁴ German regulator Bundesnetzagentur as well as the Polish regulator URE have been informed about this approach by ONTRAS and respectively by GAZ-SYSTEM.

7. Estimation of the f-factor

7.1. f-factor of ONTRAS

ONTRAS received a request for incremental capacity of 2,025,676 (kWh/h)/a until GY 2035/36 and expects that indicated demand for capacity on this level during the requested time period will be confirmed during the capacity auction. At the same time, according to Article 8 (8) NC CAM in conjunction with the BNetzA-decision BK7-15-001 (KARLA 1.1), 20% of the technical capacity from GY 2026/27 shall be set aside.

Thus, it is not possible to acquire all of the non-binding requested capacity in the 2021 annual capacity auction, which is the basis of the economic test. ONTRAS expects that all capacity which is offered in the 2021 annual auction will be booked. Because the requested capacity demand cannot be fulfilled fully, ONTRAS expects that the capacity set aside will be booked in subsequent auctions. Therefore, the f-factor must be reduced accordingly in order to provide the investment burden to later beneficiaries of the incremental capacity.

The security of supply of Germany is already on a high level due to the existing entry capacity and cannot be increased by the incremental capacity at the entry point GCP GAZ-SYSTEM/ONTRAS. Likewise, it is not expected that any additional flows at the entry point GCP GAZ-SYSTEM/ONTRAS will affect the market price of neither the GASPOOL entry-exit zone nor the later German-wide entry-exit zone. The volumes traded are many times higher than the possible additional quantities that could flow over this interconnection point.

In summary, ONTRAS sees currently no positive external effects of the project, neither in Poland nor in Germany.

For the projects necessary to provide indicated incremental capacity, an economic lifetime of 50 years is assumed. Therefore, the offered capacity can be used much longer than the time horizon for contracting capacity in the annual auction 2021. ONTRAS expects that the entry point will continue to be demanded even after requested time period respectively after the offered 15 years after the start of the operational use, albeit to a great extent lower level. In particular, the entry capacity could be used to offset the possible price differences in the adjacent market areas on short-term basis. It would also be possible for traders to transport quantities over the entry point from the Polish to the Trading Hub Europe entry-exit zone on long-term basis. However, previous experience also shows that no major transit volumes are to be expected at this point. All in all, future bookings are therefore carefully estimated at an average of 100,000 (kWh/h)/a.

The most recent reference price currently known is the reference price of the entry-exit system Trading Hub Europe for the year 2023 published in the draft of the BNetzA decision REGENT 2021 in the amount of 3.78 EUR/(kWh/h)/year. This reference price is only used for the economic test and does not become part of the contract.

Because of the high present values of the estimated increase in the allowed revenue of all German project partners in the different scenarios, mandatory minimum premiums are necessary in all scenarios.

Based on the above considerations, the calculation tool provided by BNetzA has been filled accordingly for each possible scenario. The calculation tool already takes into account many of the aforementioned considerations such as capacity set aside and bookings in later years. ONTRAS does not see any positive external effect from the project.

Mandatory minimum premium and f-factor are dependent from each other. The mandatory minimum premium per scenario is minimized and calculated as such, that the economic test is just positive if all offered incremental capacity is booked. The mandatory premium and f-factor per scenario can be obtained in the Annex 2.

If the analyses show that a re-allocation of base capacity within ONTRAS-grid without negative effects to the costs for market based instruments is possible, different parameters of the economic tests would be applied. In that case, no mandatory minimum premium would be necessary and the f-factor would be 0.74.

7.2. f-factor of GAZ-SYSTEM

Proposed by GAZ-SYSTEM estimated level of the f-factor on GAZ-SYSTEM side shall be determined as 1. The project assumptions are based on the non-binding demand indication received in the demand assessment phase and therefore, GAZ-SYSTEM estimated the f-factor with the assumption that the given incremental capacity project is a market project and its costs shall be covered by the market. In order to determine the present value of the binding commitments made by network users, GAZ-SYSTEM will use the reference price applicable in 2021 annual capacity auctions amounting to 0.43 €/kWh/h as per "The Tariff for Gas Transmission Services No. 14" approved by the President of the Energy Regulatory Office on 5 June 2020.

8. Information on additional demand indications

Neither GAZ-SYSTEM nor ONTRAS have received any additional demand indications in accordance with Article 26 (7) NC CAM.

9. Information on a possible impact on other non-depreciated gas infrastructure in the same and adjacent entry-exit systems

The realization of this incremental capacity project will not lead in a sustained and significant decrease in the utilization of other existing gas infrastructures in the two entry-exit systems.

10. Contact information



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Annex 1: Scenario matrix

Scenario	Denmark	Russia/ Netherlands	Greifswald Upgrade	Lubmin II Upgrade	Poland Mallnow	Poland GCP GAZ-SYSTEM /ONTRAS
1	1					
2		1				
3			1			
4				1		
5					1	
6						1
7	1	1				
8	1		1			
9	1			1		
10	1				1	
11	1					1
12		1	1			
13		1		1		
14		1			1	
15		1				1
16			1	1		
17			1		1	
18			1			1
19				1	1	
20				1		1
21					1	1
22	1	1	1			
23	1		1	1		
24	1			1	1	
25	1				1	1
26	1	1		1		
27	1	1			1	
28	1	1				1
29	1		1		1	
30	1		1			1
31	1			1		1
32		1	1	1		
33		1		1	1	
34		1			1	1
35		1	1		1	
36		1	1			1
37		1		1		1
38			1	1	1	
39			1		1	1
40				1	1	1
41			1	1		1
42	1	1	1	1		
43	1		1	1	1	
44	1			1	1	1
45	1	1			1	1
46	1	1	1			1
47	1		1		1	1

Scenario	Denmark	Russia/ Netherlands	Greifswald Upgrade	Lubmin II Upgrade	Poland Mallnow	Poland GCP GAZ-SYSTEM /ONTRAS
48	1		1	1		1
49	1	1		1	1	
50	1	1	1		1	
51	1	1		1		1
52		1	1	1	1	
53		1		1	1	1
54		1	1		1	1
55		1	1	1		1
56			1	1	1	1
57		1	1	1	1	1
58	1		1	1	1	1
59	1	1		1	1	1
60	1	1	1		1	1
61	1	1	1	1		1
62	1	1	1	1	1	
63	1	1	1	1	1	1
	1: economic test has a positive outcome empty cell: economic has a negative outcome					

Annex 2: Parameter of the economic test at the border Poland (E-Gas) and Germany (THE)

This annex shows the parameters of the economic test as a function of the results of the economic test of the other five projects. E.g. if the economic tests of all other projects were negative (scenario 6), the present value of the increase of the revenue cap caused by incremental capacity project at GCP GAZ-SYSTEM/ONTRAS would be 749,202,676 EUR. Therefore, a mandatory premium of 45.69 EUR/(kWh/h)/a would be needed and the f-factor would be 0.980768 in this case.

Scenario	Result of the economic test for the project...					Present value of the increase of the revenue cap [EUR]	Mandatory auction premium [EUR/(kWh/h)/a]	f-factor
	Denmark	Russia/Netherlands	Greifswald Upgrade	Lubmin II Upgrade	Poland Mallnow			
6						749,202,676	45.69	0.980868
11	1					407,161,317	22.67	0.964799
15		1				308,377,177	16.02	0.953522
18			1			236,022,262	11.15	0.939275
20				1		276,258,891	13.86	0.948124
21					1	275,353,006	13.80	0.947956
25	1				1	242,863,752	11.61	0.940984
28	1	1				269,818,773	13.43	0.946896
30	1		1			234,606,373	11.06	0.938929
31	1			1		223,650,444	10.32	0.935928
34		1			1	291,642,186	14.90	0.950849
36		1	1			239,843,204	11.41	0.940253
37		1		1		260,112,635	12.77	0.944894
39			1		1	195,749,237	8.44	0.926787
40				1	1	204,443,767	9.03	0.929925
41			1	1		196,921,040	8.52	0.927229
44	1			1	1	189,868,886	8.05	0.924555
45	1	1			1	280,115,836	14.12	0.948839
46	1	1	1			236,772,729	11.20	0.939466
47	1		1		1	187,927,352	7.92	0.923780
48	1		1	1		185,649,871	7.76	0.922804
51	1	1		1		243,024,601	11.62	0.941020
53		1		1	1	260,818,701	12.82	0.945051
54		1	1		1	262,992,481	12.97	0.945516
55		1	1	1		210,529,897	9.44	0.931951
56			1	1	1	168,586,069	6.61	0.914981
57		1	1	1	1	252,019,982	12.23	0.943140
58	1		1	1	1	166,439,496	6.47	0.913919
59	1	1		1	1	259,100,695	12.71	0.944704
60	1	1	1		1	260,173,801	12.78	0.944925
61	1	1	1	1		202,839,339	8.92	0.929360
63	1	1	1	1	1	249,139,357	12,04	0,942496

1: economic test has a positive outcome
empty cell: economic has a negative outcome